From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: JimN0OCT@aol.com
Subject: Re: #1(2) BOATANCHORS digest 131
Message-ID: <950802233622_129248102@aol.com>

Steve, N4LQ wrote:

The simplest cw xmtr I ever saw was in an old cq magazine. I think I'll go home and look it up. It had only one tube and no power transformer. This was a single 117L6. No filament or power transformer was needed! Does anyone still have one of these tubes?

It was a 117N7GT tube called the "transformerless wonder" by Dave Ingram. I built one. It works ok, but it really needs a lot of work to redesign it so it puts out 2-3 watts and has a *clean* note. As designed, it will put out 2-3 watts with an incredible amount of chirp. Was fun to build and get working properly, and it is nice to have rig to plug in that doesn't have transformers sticking out of it.

BEWARE, however, you're keying 117V live on the key line!

73, Jim N0OCT

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: FRANCIS4@AppleLink.Apple.COM (Francis, Dexter)
Subject: 1.5 & 45 Volt Battery source
Message-ID: <807481050.7862255@AppleLink.Apple.COM>

Thought you'all might like to know that Newark lists Eveready 1.5 Volt Lantern/Hobby (#735 = $7.42)) and 45 volt (#'s 415 [$10.50] & 455 [$17.16]) Electronic batteries. The 45 volt units are a different size than the stock BC-906 45 Volt dry cell. (2 1/2 x 1 x 3 3/4) but may fit...

-df

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jmartin@hrlban1.aircrew.asu.edu
Subject: 2E24 tube availability
Message-ID: <SA39+dRx5ka@hrlban1.alhra.af.mil>

To all BA'ites...

I just got off the phone with Antique Electronic Supply (they're in Tempe, I'm next door in Mesa, AZ), asking about availability of their 2E24s advertised for $1.00 each. Dwight, at their order desk, told me they have over 3000 (yes, three thousand) on hand, and that's why they're so cheap. For those of you interested in homebrew transmitter projects or 'shelf stock' it sounds like a virtual mother lode. I'm going over there myself in an hour or so and get some for myself.
73, John Martin

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: Jeffrey Herman <jeffrey@math.hawaii.edu>
Subject: Re: 2E24 tube availability
Message-ID: <Pine.SUN.3.91.950802140758.110B-100000@kahuna>

I only have a '91 Handbook on hand here with a very limited listing of tubes |(and no 2E24 listed; does it have a 2 volt filament? The 2E22 *is* listed, though; how close are the specs?

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: "Deane D McIntyre" <dmcintyr@ds1.acs.ucalgary.ca>
Subject: Re: 2E24 tube availability
Message-ID: <9508030359.AA44602@ds1.acs.ucalgary.ca>

In message <Pine.SUN.3.91.950802140758.110B-100000@kahuna> writes:

> I only have a '91 Handbook on hand here with a very limited
> listing of tubes |(and no 2E24 listed; does it have a 2 volt
> filament? The 2E22 *is* listed, though; how close are the specs?

Jeff and the rest of the Gang:

The 2E24 is basically a 2E26 with a filamentary cathode instead of an indirectly heated cathode. Both tubes require 6.3 volts for this purpose. From my 1953 ARRL Handbook:

Type 2E24. Max. Plate Dissipation, 13.5 Watts. Filament 6.3 V, 0.65 A. Max plate voltage, 500 (telephony), 600 (CW). Max screen voltage, 200. Max. Screen dissipation, 2.3 (phone), 2.5 (CW). Max Freq at full ratings, 125 Mc. Octal base, connections 7CL.

Typical Operation: (all class C):

Mode	Plate Volts	Screen Volts	Grid Volts	Plate Current ma	Screen Current ma	Grid Current ma	Screen Resister ohms	Grid Drive Watts	Output Watts
Phone	400	180	-45	50	8	2.5	27500	0.15	13.5

Phone	500	180	-45	54	8	2.5	40000	0.16	18.0
CW	400	200	-45	75	10	3.0	20000	0.19	20
CW	600	195	-50	66	10	3.0	40500	0.21	27

How, the kicker. In a footnote, it is stated for the 2E24 (but not the 2E26): Filament limited to intermittent operation. This is the only tube in the table that has this footnote. I have never heard of a tube with this restriction before. Does anyone know the max. duty cycle for this tube? Perhaps this is why AES has 3000 in stock for only a buck a bottle......

73, Deane D McIntyre VE6BPO
dmcintyr@acs.ucalgary.ca

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <199508031409.KAA11286@cc01du.unity.ncsu.edu>

>
> In message <Pine.SUN.3.91.950802140758.110B-100000@kahuna> writes:
> > I only have a '91 Handbook on hand here with a very limited
> > listing of tubes |(and no 2E24 listed; does it have a 2 volt
> > filament? The 2E22 *is* listed, though; how close are the specs?
>
> Jeff and the rest of the Gang:
>
> The 2E24 is basically a 2E26 with a filamentary cathode instead of
> an indirectly heated cathode. Both tubes require 6.3 volts for
> this purpose. From my 1953 ARRL Handbook:
>
> 73, Deane D McIntyre VE6BPO
> dmcintyr@acs.ucalgary.ca

Add to that that is is pin identical to the types 2E24, 2E26, 6146, 6159, and the other one of the 6/12/24 volt 6146ish series.
Properly designed into a circuit, it does not matter if it is filamentary or indirectly heated in the cathode.

All of these will intermix well --- PROVIDED you operate them within their appropriate limits.

There is absolutely nothing wrong with making, for example, a one-tuber novice rig on the basic 6146 style, but with variable plate voltages or only with maybe 450 volts or so, and subbing any of these tubes therein.
One could design a big rig using a 2E24 as oscillator/buffer/xmultipliers/

and a triplet as PA finals, all with one tube and it would work fine. Also, one can make a very good regenerator and one-step or two-step using the same philosophy. THEN, the entire shack runs on one basic tube style/type. Now THAT is pragmatic simplicity and utilitarian utopia of the first water!

Hence, at a buck a piece, it makes for a very sound and interesting play BA tube, for sure!

73/ZUT DE NA4G/Bob

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <Pine.3.89.9508030837.A1959-0100000@mesa5.mesa.colorado.edu>

Bob,

It might be an interesting "project" for the BA group to find (or design) a good but fairly simple circuit for a rig that could use a 2E24, 2E26, or even 6146 as close to interchangably as possible. It seems that there is a fair amount of interest in something like this from what I have read on the list during the last few days. I would urge that we use a two tube design (separate crystal oscillator and PA) in order to produce a reliably good signal. It could start out as a cw rig with the option of building a plate (or even screen) modulator. Who knows, this might even lead to a BA "net."

What is your opinion?

73,

Jim Rybak W0KSD

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <9508031512.AA07135@speckle.ncsl.nist.gov>

>Bob,
>
>It might be an interesting "project" for the BA group to find (or design)
>a good but fairly simple circuit for a rig that could use a 2E24, 2E26,
>

>What is your opinion?

I'll build one.

-- Roy --
Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov
---

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <199508031516.LAA14926@cc01du.unity.ncsu.edu>

>
> Bob,
>
> It might be an interesting "project" for the BA group to find (or design) a good but fairly simple circuit for a rig that could use a 2E24, 2E26, or even 6146 as close to interchangably as possible. It seems that there is a fair amount of interest in something like this from what I have read on the list during the last few days. I would urge that we use a two tube design (separate crystal oscillator and PA) in order to produce a reliably good signal. It could start out as a cw rig with the option of building a plate (or even screen) modulator. Who knows, this might even lead to a BA "net."
>
> What is your opinion?

I concur! But, reality dictates a 3 or 4 stage design for best stability. It can be done in two stages, but only on 160/80 meters.

I have been diligently paging through all of my QST's from 1930-1955, as well as the various manuals and handbooks that I have accumulated, looking for good basic designs. Out of all the designs, there is a tendency toward a 3 stage design, very much similar in philosophy to the Radiomarine Model ET-8019A shipboard rig that I run, normally. If RCA liked it, in that era, it is probably sound philosophy.

My thoughts are as follows:

1. Oscillator --- electron coupled Seiler oscillator as vfo.
                   Fundamental frequency 160 meters.

2. Buffer --- untuned impedance coupled to oscillator with tuned tank for fundamental or doubling to 80 meters.

3. Multiplier --- untuned input, tuned output with taps for 160,80,40 meters in a pi-net output circuit (high impedance).

4. Plate Amp --- triplet of parallel tubes, untuned input, grid swamped to 600-1000 ohms with decoupling grid resistors and plate parasitic chokes, pi-L network output with added series tuning capacitance (shortable) for feeding single wires, open wire feeders, or (yech!) coax. I love rigs with built-in antenna tuners for anything!

Using 6146's or the equivalent in the finals, it would be the roughly the same as the venerable find old Viking Valiant of generic renown, essentially, except for only 160/80/40M coverage.

For plate supply, use 450-600 volts and run all lower voltage off of a divider string which is grounded/keyed to provide grid bias keying (essentialy B- keying) to all stages for QSK. A VR tube string of maybe a pair of 90's or 105's to run the oscillator stabilized.

Aside from requiring one type in parallel in the final, the other stages could be mixed and matched any of the 2E24-6146ish types.

If only 160/80 meter coverage was wanted, delete the multiplier stage.

Sounds like a winner to me!

> 73,
>
> Jim Rybak W0KSD

73/ZUT DE NA4G/Bob

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <Pine.3.89.9508030931.A2559-0100000@mesa5.mesa.colorado.edu>

Bob,

Your idea for a multi-stage rig makes good sense. Let's see what others have to say about the idea.

Jim W0KSD

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: Mark Blair <Mark.Blair@tus.ssi1.COM>
Subject: Re: 2E24 tube availability for playing etc.
Message-ID: <199508031627.JAA27976@tu212.tus.ssi1.com>

rdkeys@unity.ncsu.edu wrote:

> Add to that that is is pin identical to the types 2E24, 2E26, 6146,
> 6159, and the other one of the 6/12/24 volt 6146ish series.
> Properly designed into a circuit, it does not matter if it is filamentary
> or indirectly heated in the cathode.
>
> All of these will intermix well --- PROVIDED you operate them within
> their appropriate limits.

I have to agree. When I got my RT-68 (which is still in the to-be-fixed pile...), it had a 2E26 installed in place of the expected 2E24. The transmitter didn't seem to be any less nonfunctional when I replaced it with a 2E24. :-)

--
Mark J. Blair, KE6MYK   Silicon Systems, Inc.
Design Engineer   14351 Myford Rd. m/s C-90
mark.blair@tus.ssi1.com (714) 573-6709   Tustin, CA 92680-7022

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jcreid@CCGATE.HAC.COM
Subject: 328 lamps
Message-ID: <9507028073.AA807382612@CCGATE.HAC.COM>

According to the Newark catalog, the 328 bulb wants to run at 6V/200mA and only has a life of about 1,000 hours. The 381 is supposedly the same package but runs at 6.3V/200mA and has a life of 20,000 hours. I'm no lamp expert, but it sounds like the 381 is what you're looking for.

-Jim N6SVS
jcreid@ccgate.hac.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: Clark Fishman (FSAC) <cfishman@fsac3.pica.army.mil>
Subject: 572B
Message-ID: <9508031530.aa15869@FSAC3.PICA.ARMY.MIL>

does anybody have data sheets on the 572B triode...I know
it's an 811 on drugs..but plate current curves etc. would
be appreciated..

postage, copying ..what ever costs gladdly paid

Clark Fishman   WA2UNN   cfishman@pica.army.mil
Box 150
Andover, NJ 07821

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jproc@worldlinx.com
Subject: Aircraft Home Page
Message-ID: <Chameleon.4.01.2.950902231644.jproc@jproc>

Dear BA's,

For those of you who are interested in aircraft, I found a great Web page
with lots of aircraft pics. The URL string is:

http://www.telepath.com:80/seanair/picgall.html

Regards,

Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida Toronto, Ontario

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: KE8NEfix@aol.com
Subject: ARC-5 receivers and acc.
Message-ID: <950802165717_128922347@aol.com>

Thanks gentlemen,

Both the receivers, rack assemblies and the knob have been sold

73

KIM

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: jcreid@CCGATE.HAC.COM
Subject: Automated tube tester
Message-ID: <9507038074.AA807477623@CCGATE.HAC.COM>

At one time, a friend and I seriously considered trying to build a computerized tube tester. I had an old Hickok 600 that the case was pretty well rotted away and bunch of Apple II's. A simple database would store all the parameters. We had an 8 bit D/A and A/D card. The headache came from trying to figure out how to switch all the different pins to the correct supplies. I still have all the raw materials if anyone has a new slant on things. Even if the Apple would be slower than doing it manually, it sure would be easier than pushing all those buttons or turning all the knobs. It'd be a lot easier on the switches, too. Any suggestions?

-Jim N6SVS
jcreid@ccgate.hac.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: Jack Taylor <n7oo@hereford.ampr.org>
Subject: BA graphics survey - Initial rpt
Message-ID: <199508031944.OAA04654@uro.theporch.com>

--=====================_807503506==_
Content-Type: text/plain; charset="us-ascii"

--=====================_807503506==_
Content-Type: text/plain; charset="us-ascii"

Here's an interim report on the survey with 28 respondees out of 500+. The initial responses indicate a lot of "power users" in the group! Also a number of very interesting comments. Several have access to a variety of machines, printers and operating systems. In these cases I tallyed only the resources most applicable to graphics. In section 8, a few people didn't have any graphics preferences and some had secondary preferences of which I listed the primary choice.

While many indicated no practical limit to graphics file size, some suggested keeping the size to either 1 meg, or no more than what would fit on a 1.2 meg floppy. Although not indicated in this go-around, suspect file storage on a floppy will be an advantage to those with limited hard drive space. Thus there may be a file limit of no more than 360K compressed for some. Off hand, I don't know what compression ratios to expect out of Postscript. On the next go-around, we would like to hear from those who are limited to a 360 or 720K floppy capacity.

It's realized most of us haven't had occasion to get involved with graphics to any extent. Perhaps this is why the response to the survey has been light. Of concern is how to satisfy the graphics capabilities of those net members with minimal equipment. Surely not everyone has direct internet access. There must be quite a few who'd like to quickly tap into the internet for a schematic but have email file size limitations. Please take a moment to be heard. Answer the questionaire by editing the responses below and return to:

n7oo@hereford.ampr.org

(INITIAL) BOATANCHOR LIST GRAPHICS SURVEY RESULTS

1. Type of computer

(Mac)	5
(IBM)	14
(WORK STN)	9

2. Operating system

(Apple)	4
(DOS)	4
(DOS w/WIN)	9
(UN*X)	10
(VMS)	1

3. Access to the internet via

(ethernet)	13
(PPP/SLIP)	11
(Email)	1
(Modem)	3

4. Capability to download binary files

(yes)	27
(no)	1

5. Printer type

(inkjet)	5
(laser)	20

(dm) 3

6. Postscript capability
(yes) 21
(no) 7

7. Postscript tutorial required
(yes) 6
(no) 17
(donno) 4

8. Comments on anything else I may have overlooked, including YOUR graphics
language preferance.
(ascii line dwgs) 1
(Postscript) 8
(GIF/JPEG) 6
(Adobe) 2
(BMP) 2
(No choice) 9

--====================_807503506==_--

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: dan.poorman@lsj.com (Dan Poorman)
Subject: re: BA sightings
Message-ID: <9508021820395337@lsj.com>

-> Several weeks ago on "Wings", not the one about military airplanes, I
-> saw what looked like an SX-24/SX-25 or something similar. Just a qui
-> shot of it. Has anyone else seen this one?

I'm not sure of the model number, but find it fascinating that they have a microphone plugged into the headphone jack and use it to communicate with their plane. Must be one heck of a "restoration" job.

It's also fun to see the ham gear on the Andy Griffith show. In the movie I noticed they changed from the Eico they had been using to something more modern but I don't remember what it was. Still ham gear for the sheriff though.

Dan, WB8QKR
Dan.Poorman@lsj.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995

From: Gordon Symonds <gsymonds@hpb.hwc.ca>
Subject: Re:BA/Enigma Sightings
Message-ID: <Pine.3.89.9508031427.B2549-0100000@hpb.hwc.ca>

The recent Nova program on cryptoanalysis was based almost entirely on the unique cryptology museum at the National Security Agency. The museum is located midway between Washington and Baltimore, at Fort Meade (Laurel, MD). ***It is open to the public***.

They have every enigma machine there was, including the 4-rotor submarine job, and even have one set up to play with. They also have the Purple machine, etc., etc.

Not too long ago NSA never even admitted its existence. Now that the cold war is over and the budget cruch is here even, they are doing a little PR!

Professional tour given. Very highly recommended.

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: Mark Blair <Mark.Blair@tus.ssi1.COM>
Subject: Re: BA/Enigma Spotting
Message-ID: <199508031619.JAA27966@tu212.tus.ssi1.com>

n5off@w5ddl.aara.org wrote:
> Tonite was a good nite for BA spotting.

Speaking of Enigmas, about a year ago I saw a three-rotor Enigma at a gun show. That really surprised me. I would have expected that not too many of them survived the end of WW-II, and that they were probably confiscated and locked in some vault somewhere. I think the seller was asking $6500 OBO for it, but my memory could be flaky. It was just sitting out on the table, so you could even fiddle around with it. I think it was by far the most interesting item on display at the show. Oh yeah, I also tracked down a cable I needed for my RT-70 there, which was why I went there in the first place.

Am I mistaken? Could the unit have been authentic? Were there any accurate reproductions made? Did any of the four-rotor units survive the war and fall into civilian hands?

```
--
Mark J. Blair, KE6MYK                      Silicon Systems, Inc.
Design Engineer                            14351 Myford Rd. m/s C-90
mark.blair@tus.ssi1.com  (714) 573-6709    Tustin, CA  92680-7022
```

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: Paul.Thekan@pgtp.varian.com (Paul Thekan)
Subject: BC 611 Test Set
Message-ID: <9508021839.AA26877@pgtp.varian.com>

Would any of the died in the wool military radio collectors out there in the group have an idea what a NIB IE - 17 test set is worth. It was used to work on the BC 611 handie talkie.

Thanks in advance
Paul N6FEG

Paul Thekan - Speaking for Himself
Paul.Thekan@pgtp.varian.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "Turini, Bill" <turinib@wdni.com>
Subject: Boatanchor Siting - RME45
Message-ID: <199508031956.AA01870@interlock.wdni.com>

Just came back from my local surplus emporium and noticed there an old RME 45. Very good condition, no rust, not as dusty as I expected inside, with manual. But did it really come with a powder blue front panel? They're asking $125 in case anyone's interested.

Bill Turini KA4GAV/7 turinib@wdni.com
Weyerhaeuser Co.

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "Gable, Edward M" <emg@rfpo2.rfc.comm.harris.com>
Subject: RE: Boatanchor Siting - RME45
Message-ID: <302131D1@smtpgate.rfc.comm.harris.com>

Just came back from my local surplus emporium and noticed there an old RME 45. Very good condition, no rust, not as dusty as I expected inside, with manual. But did it really come with a powder blue front panel? They're

asking $125 in case anyone's interested.
++++++++++++++++++++++++++++++++++++++
No, powder blue won't cut it in the unmodified, original RME arena.   They were
all grey with black overlays and white or silver lettering. $125.00 is high end
from my experience. Interesting radio tho and Hank loves to share alignment
experiences.......

Regards,

Ed K2MP "The RME Guy" @ Rochester
emg@rfc.comm.harris.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: CWIST Monday Night Code Munch
Message-ID: <9508032109.AA103073@csemail.cropsci.ncsu.edu>

>
>
> - Bob -
>
> Thanks for making this available. Hopefully I can pick up an occasional
> letter while listening.
>
> I am having trouble with 9 pm EST Monday being the same at 0100Z Tuesday
> Radio Day. Maybe it will start at 9 pm EDT. Maybe I should start
> listening at 8 pm.
>
> Anyhow, thanks for doing it.
>
> 73   Rhett - KE4HIH
>

There is 4 hours difference between EDT (yeah I goofed EST if 5 hours)
and GMT radio time.....(:+}}.....

Bob

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: KE8NEfix@aol.com

Subject: Dave Knepper-Where Be you
Message-ID: <950803161615_129745167@aol.com>

Dave,

I've got the information you and I were talking about, but I can't find your e-mail address. Seems I've mislaid it. They say a messy desk is a sign of a fertile mind. If that's the case mine has probably been overfertilized.

KIM

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: HAMRLUND@aol.com
Subject: Re: Dave Knepper-Where Be you
Message-ID: <950803164724_47255116@aol.com>

kim see CC

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: "James C. Owen, III" <owen@apollo.eeel.nist.gov>
Subject: Re: Do semiconductors wear out? NOPE
Message-ID: <41206.owen@apollo.eeel.nist.gov>

In message Thu, 3 Aug 1995 10:13:20 -0500 (CDT), jproc@worldlinx.com writes:

>>>
> Dear BA's,
>
> I know that this is a tube fourm, but recently someone passed on a remark
> to me that didn't quite make sense. I was in favour of leaving a solid
> state piece of equipment powered on for 24 hours a day. The other party
> did not advise that because the transistors would 'wear out'.
>
> Many years ago, I vaguely remember reading something about crystalline
> growth shorting out semiconductor junctions caused by years of current
> flow through the device. There was something about 'contaminants in
> semiconductor material will eventually migrate towards the junction(s)
> and render the device useless'. Not being a semiconductor expert, I was
> wondering if anyone has ever heard of semiconductors 'wearing out'
> assuming the devices are never hit with power spikes.
>
> Regards,
> -------------------------------------
> Jerry Proc VE3FAB
> E-mail: jproc@worldlinx.com

> Radio Restoration Volunteer
> HMCS Haida Toronto, Ontario
> -----------------------------------
>

Well not being an expert on semiconductors either I asked the experts in my division "Semiconductor Electronics Division" your question. The answer, if the semiconductor is constructed properly and run within specs. NO it will not wear out due to migration of the metal. If however excessive current is forced through the junction the metal (aluminum) can migrate to the junction and in time short it out. But the answer you seek is NO. Now since we are a little off the proper path of this group let me apologize for discussing semiconductors but I thought it might be of interest to the group. Now back to Vacuum. 73 Jim K4CGY

James C. Owen, III
National Institute of Standards & Technology (NIST)
Bldg 225/B360
Gaithersburg, MD 20899
1-301-975-5623

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: wlfuqu00@service1.uky.edu (Bill Fuqua)
Subject: Re: Do semiconductors wear out? yes
Message-ID: <199508031932.PAA05640@service1.uky.edu>

There is a problem now today which will make impossible to restore future boat anchors.

That is that many products have one time programmable processors in them or have e-prom or eeprom. These devices in the future may be unavaliable. Many of the processors have security built in so that you cannot read out the program.
companies are not around 20 years from now or if they are unwilling to provide the program to you, your boat anchor maybe useless. I have seen this problem in
some HT's that used 6800 series OTP processors. Today many folks use MicroChip's PIC microcontrollers. They are very cheap but will forget their programs in 20 or 30 years.

73
Bill ko4ww

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: Re: Do semiconductors wear out? yes

Message-ID: <9508032000.AA16985@speckle.ncsl.nist.gov>

> There is a problem now today which will make impossible to restore future
>boat anchors.
>
> That is that many products have one time programmable processors in them
>or have e-prom or eeprom.

All such devices are not boatanchors.

Simply ignore them.

"Just say NO!"

-- Roy --
Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)
301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov
---

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: jproc@worldlinx.com
Subject: Re: Do vacuum tubes have shelf life
Message-ID: <Chameleon.4.01.2.950903140521.jproc@>

That is why the signal to noise ratio of a solid state
>device changes of the life of the device.. This is directly affected, so
I'm
>told, by the number of hours on the device and the type of semiconductor
>used.

Kim,

That's most interesting. I'm willing to bet that unlike a fine vintage wine, the S/N ratio doesn't improve with age in solid state radios. Shhh!! Don't let the manufacturers of those riceboxes find this out or they will turn it into a spec/feature. (ie S/N ratio: variable) :-):-)

Regards,

Jerry Proc VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer

HMCS Haida Toronto, Ontario

Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida Toronto, Ontario

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: jproc@worldlinx.com
Subject: Re: do vacuum tubes have shelf life
Message-ID: <Chameleon.4.01.2.950903140646.jproc@>

>Under temperature, contaminants in a semiconductor structure become
>mobile, and yes, bias will help them move along on their way to
>a failure site (if there are enough of them to cause large leakage
>currents, etc) but this describes a phenomenon of a poorly made part, not
>a wearout mechanism. (Hows THAT for a run-on sentence?!?!)

John,

You have just help me to recall the article and summarized it well. It is the amount of contaminants in the crystalline structure that is of parmount importance and that reflects right back to the manufacturing process. By contaminants, I mean any residual material over and above what it takes to create N or P type material.

>From where I sit, a far greater threat than junction contamination and failure is the availibilty of replacement semiconductors well into the future - especially things like ROM chips, LED display assemblies and special purpose chips. The RTL and DTL logic families of the 1970's are already history. Every s/s device designed with a Motorola MFC6030 voltage regulator is living on borrowed time. Provided that vacuum tubes are continuously available in the marketplacen in one form or another, I believe that many vacuum tube BA's will outlive their 'sandbox' successors.

Regards,

Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com

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Radio Restoration Volunteer
HMCS Haida  Toronto, Ontario
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Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida  Toronto, Ontario
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From boatanchors@theporch.com Thu Aug  3 10:19:00 1995
From: jeffrey@math.hawaii.edu (Jeffrey Herman)
Subject: Re: Do vacuum tubes have shelf life?
Message-ID: <9508030828.AA01079@kahuna.math.hawaii.edu>

The question was posed if tubes have a shelf life:

>I have tested 450TL's built before WWII, and they are perfect.  Also,
>other glass xmitting tubes, such as 100TH/TL, 813, etc, which have been
>lying around for decades and still unused.  They were all perfect, and the
>transconductance and characteristic curves were within specs.   I have
>also found new, unused (in original boxes) receiving tubes, such as as the
>30, 41, etc.  They likewise tested like new.  I have
>concluded that the shelf life of these kinds of tubes is INDEFINITE.  Tubesdo
>not normally become "gassy" except through the outgassing of the internal parts
>due to elevated temperature.  That is why xmitting tubes are pumped down while
>their elements are red-hot (by passing large currents thru them). It is
>fun to test these tubes, and plot their characteristics.  I have contemplated
>making my own tube out of parts from broken ones, and pumping it down
>and resealing the glass envelope. "Final here uses a W6JL-1 triode, OM"....
>73,
>         Don, W6JL

Jeff NH6IL
NNNN


From boatanchors@theporch.com Thu Aug  3 17:26:00 1995
From: oranges@FRB.GOV
Subject: Re: Do vacuum tubes have shelf life?
Message-ID: <02153920@ccmail.frb.gov>

Hello BA's
```

A few words on building and rebuilding tubes,I do not think it would be easy to get much life out of tubes build with out a Clean Room and other needed Equipment.

In _Handbook of Electron Tube and Vacuum Techniques_ By F. Rosebury, Pub.1965, Starts by listing 5 type of contaminants in tube assembly that would cause failures:

A. Environmental contaminants
B. Water-soluble salts
C. Nonwater-soluble organic materials
D. Nonsoluble chemically combined materials
E. Contaminating gases

then goes on for 600 pages more on construction techniques and materials for tubes.

Fred bohner   Email address is Oranges@frb.gov
Washington,dc   Message for personal use NOT FOR
                 Official Use.

Ps. If anyone has a copy of HoETaVT or MIT's _Tube Laboratory Manual_ they want to sell, Email me.

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: Do vacuum tubes have shelf life? NOPE
Message-ID: <199508031345.JAA09867@cc01du.unity.ncsu.edu>

>
> The question was posed if tubes have a shelf life:
>
> >I have tested 450TL's built before WWII, and they are perfect. Also,
> >other glass xmitting tubes, such as 100TH/TL, 813, etc, which have been
> >lying around for decades and still unused. They were all perfect, and the
> >transconductance and characteristic curves were within specs.   I have
> >also found new, unused (in original boxes) receiving tubes, such as as the
> >30, 41, etc. They likewise tested like new. I have
> >concluded that the shelf life of these kinds of tubes is INDEFINITE.

This is basically correct. Vacuum tubes have an indefinite shelf life, on average, with the following proviso --- that the seals do not leak. Leaks kill them dead.

I had the good fortune to run some tests with some experimental pre-production 203's and 211's (dating from before 1921) that were hand made rather than machine run, and they still worked fine. I was somewhat scared that I might blow one, but after my shell-shock, I was rather amazed that they held up so well, at least in Hartley oscillator use. I did the same thing with an old WE 5 watter from WWI and it did just fine too, both as regenerative detector and oscillator.

Thank Heavens our Wondrous Self-heating Firebottles are so Rugged!

> >Tubes do not normally
> >become "gassy" except through the outgassing of the internal parts due
> >to elevated temperature.

Basically right, with the leaky seals proviso. Most tubes have a sufficient getter that they can be pretty gassy from outgassing of the electrodes and still work very well. Most very early ones without getters, we would NOT be running routinely, would we?

> > That is why xmitting tubes are pumped down while
> >their elements are red-hot (by passing large currents thru them).

Minor correcto, from what I have seen. The tubes are induction heated by placing a tank coil over the tube and exciting it HEAVILY with RF to essentially cook the beast into almost white heat. Then the residual gasses are emitted from the electrodes under vacuum and pumped off. I am not aware of large currents passing through the electrodes, other than normal or slightly above normal filament voltage. Any BA folks ever work in a tube plant and can enlighten more details?

> >It is
> >fun to test these tubes, and plot their characteristics.

Yup, it is, and is the first vacuum tube experiment in all the ancient 30's and 40's high-school/college electronics classes.

What we need to do is devise a funky BA computerized automated vacuum tube tracer (BACAVTT) for testing these beasties. A simple A/D module with some simple i/o software, and it should be a pieceo del cakeo.

Net-dreams aside, if the thing looks good, and not milky white/silver inside as if its internal smoke detector already blew, and the filament connections are good (I can't tell you how many `01's and '01A's I have laboriously unsoldered and resoldered in the bases to restoke them thar fires therein due to bad joints in the bases), then the odds are that the thing will work just fine in many applications, for as long as you or I are tending the firebottle works.

> >I have contemplated

> >making my own tube out of parts from broken ones, and pumping it down
> >and resealing the glass envelope. "Final here uses a W6JL-1 triode, OM"....

Wud LUV to make a run of '01A types or '10 types for the fun of it.
There is a fellow in Germany that makes tubes in his basement.
Mebbee some 10,000 or so of each type for all us BA freaks to nurture
on into the 21's century.   Mebbee Svetlana would be interested in
such a project, if it would not break everyone's piggie bank.

Ahhhh, dreams.....

Else, make 4 pin adapters and wire in all those 5 volt TV tubes!
....Baby almost 99er/01's...... (:+}}.....

> >73,
> >   Don, W6JL
>
> Jeff NH6IL
> NNNN
>

73/ZUT OM VA
DE NA4G/Bob

``Whas dat NNNN stuff emanatin' from a 600 meter man's fingers?''

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: jproc@worldlinx.com
Subject: Re: Do vacuum tubes have shelf life? NOPE
Message-ID: <Chameleon.4.01.2.950903105650.jproc@>

>>
>> The question was posed if tubes have a shelf life:
>>

Dear BA's,

I know that this is a tube fourm, but recently someone passed on a remark to
me that didn't quite make sense. I was in favour of leaving a solid state
piece of equipment powered on for 24 hours a day. The other party did not
advise that because the transistors would 'wear out'.

Many years ago, I vaguely remember reading something about crystalline growth
shorting out semiconductor junctions caused by years of current flow through
the device. There was something about 'contaminants in semiconductor material

will eventually migrate towards the junction(s) and render the device
useless'. Not being a semiconductor expert, I was wondering if anyone has
ever heard of semiconductors 'wearing out' assuming the devices are never hit
with power spikes.

Regards,

Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida Toronto, Ontario

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: Do vacuum tubes have shelf life? NOPE
Message-ID: <199508031526.LAA15674@cc01du.unity.ncsu.edu>

>
> >Wud LUV to make a run of '01A types ... Mebbee Svetlana would be
> >interested in such a project, if it would not break everyone's
> >piggie bank.
>
> The Viac company (with Dr. Riccardo Kron, a member of our antique radio club
> and one of the world's authorities on Guliermo Maconi in volved) has done
> just that for some of the very early Marconi tubes and others. They must
> cost a bundle, because the companys recently-introduced plug-in replacements
> for the 300B are priced at about $300 EACH.
>
> -- Roy --

Well, if folks wants them thar fancy 300B's, there is this bridge in
Brooklyn that a feller want's ta sell.....(:+}}.....

300B's and audio bull doodoo go hand in hand......(:+{{.....

I was thinking of something not quite so rose colored in the eyeball
department. Even if someone were to take a simple late model triode
design, for example even a 30 or a 6C4 or a 9003 (I think it was)
and drop that into something that looks, smells, feels, runs like
an '01A, then that would be a fine proposition. There are late
model Russian front end tubes used in their mil stuff that if a suitable
triode version could be found, might drop-in as an '01A. Since that
technology is still in place, maybe an adaptation would be workable
without busting the piggie bank. They still use tube gear over there

in the military, and the same plants have been cranking the gear out
for 30 years or so (same gear even according to a fellow I met who
used to work at one of the Polish plants before Glasnost).

I have a lot of respect for Kron's work, but 300 buckeroos buys a lot
of used tubies to play with.

73/Bob/NA4G

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: johnmb <johnmb@nando.net>
Subject: Re: Do vacuum tubes have shelf life? NOPE
Message-ID: <Pine.SUN.3.91.950803112311.13126B-100000@parsifal.nando.net>

Under temperature, contaminants in a semiconductor structure become
mobile, and yes, bias will help them move along on their way to
a failure site (if there are enough of them to cause large leakage
currents, etc) but this describes a phenomenon of a poorly made part, not
a wearout mechanism. (Hows THAT for a run-on sentence?!?!)

Back to BA's!
/john

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: clarke@acme.ist.ucf.edu (Thomas Clarke)
Subject: Re: Do vacuum tubes have shelf life? NOPE
Message-ID: <m0se3Kx-0006WsC@next1.acme.ist.ucf.edu>

ohnmb wrote

>Under temperature, contaminants in a semiconductor structure become
>mobile, and yes, bias will help them move along on their way...

But pure sillycon does nothing interesting electronically.
The stuff that makes it N and P so it does useful things is
a contaminant. Over time the PN junctions could loose their
sharpness as the contaminants move, eventually killing the part.
I imagine the problem would be worse in the teeny-weeny junctions
in a Pentangle chip.

Tom Clarke
KE4VFH

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: "Barry L. Ornitz" <ornitz@eastman.com>
Subject: Re: Do vacuum tubes have shelf life? NOPE (Maybe)
Message-ID: <Pine.ULT.3.91.950803095121.8510B-100000@dua150.kpt.emn.com>

On Thu, 3 Aug 1995 Bob Keys and Jeff Herman wrote:

> > The question was posed if tubes have a shelf life:
> > > I have concluded that the shelf life of these kinds of tubes is
> > > INDEFINITE.
>
> This is basically correct. Vacuum tubes have an indefinite shelf life, on average, with the following proviso --- that the seals do not leak. Leaks kill them dead.

> > >Tubes do not normally
> > >become "gassy" except through the outgassing of the internal parts due
> > >to elevated temperature.
>
> Basically right, with the leaky seals proviso. Most tubes have a sufficient getter that they can be pretty gassy from outgassing of the electrodes and still work very well. Most very early ones without getters, we would NOT be running routinely, would we?

Glass to metal seals in vacuum tubes are the critical issue in holding vacuum. Special alloys were developed to match the thermal expansion characteristics of the various glasses (Kovar, Dumet, etc.), and these were usually thinly plated to provide a surface that could be better wetted by the glass in its molten state. The glass itself is not very permeable to most gases and the hard glass used in transmitting tubes is even better in this regard than the soft glass in receiving tubes.

Exposing the tubes to hydrogen or helium gas is a different matter, however, because these gases can diffuse through the glass and metal much more readily due to their small atomic size. This should be a non-problem to most of us since hydrogen or helium gases are rarely found around the home. Hydrogen thyratrons, however, might have a limited shelf life. (Anyone into vintage radar pulse modulators?)

I have a photoionization hydrocarbon monitor that uses a deuterium discharge lamp as an ultraviolet source. These tubes DO have a limited shelf life as the deuterium gradually leaks out. (Deuterium is an isotope of hydrogen.) These babies are about $500 each, so you do your best to limit the number of spares sitting on the shelf.

> > > That is why xmitting tubes are pumped down while
> > >their elements are red-hot (by passing large currents thru them).

>
> Minor correcto, from what I have seen. The tubes are induction heated
> by placing a tank coil over the tube and exciting it HEAVILY with RF
> to essentially cook the beast into almost white heat.   Then the
> residual gasses are emitted from the electrodes under vacuum and pumped off.
> I am not aware of large currents passing through the electrodes, other
> than normal or slightly above normal filament voltage. Any BA folks ever
> work in a tube plant and can enlighten more details?

Usually a combination of induction heating and thermal heating of the envelope is used. With some multi-element tubes for transmitting service, internal current heating may be used on the grids.

> There is a fellow in Germany that makes tubes in his basement.

I have heard a number of anecdotal stories similar to this but I have never been able to get any details. Making reproducible tubes with good characteristics is something virtually impossible to accomplish at home.

I still stand by my statement made to this group several months ago. I believe it would be almost impossible for US industry to tool up and mass produce vacuum tubes again at reasonable prices. A significant portion of vacuum tube manufacturing is art rather than science - and unfortunately the US has lost almost all of the artisans and is rapidly losing its technology in vacuum tubes too.

73, Barry WA4VZQ ornitz@eastman.com

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: Do vacuum tubes have shelf life? NOPE (Maybe)
Message-ID: <199508031610.MAA17699@cc01du.unity.ncsu.edu>

>
> Glass to metal seals in vacuum tubes are the critical issue in holding
> vacuum. Special alloys were developed to match the thermal expansion
> characteristics of the various glasses (Kovar, Dumet, etc.), and these
> were usually thinly plated to provide a surface that could be better
> wetted by the glass in its molten state. The glass itself is not very
> permeable to most gases and the hard glass used in transmitting tubes is
> even better in this regard than the soft glass in receiving tubes.

Now you are stirring up grey area memories in the bilges.
I had forgotten some of those finer points. TNX.

> Usually a combination of induction heating and thermal heating of the

> envelope is used. With some multi-element tubes for transmitting
> service, internal current heating may be used on the grids.

Likewise, I forgot about the flame heating rings around the glass
bulbs as they were being bombarded with RF. I was not aware of
grid heating using internal currents.

There are several fine articles on the art/craft of tube constrution
in Radio Broadcasting about 1924 or so (a somewhat scarce little popular
rag of the era). Also, Ghirardi, I think goes into some detail in
his bible. The basics are covered in van der Bilj's classic work
from 1917 or so. I think enough information is there, to be had,
but the art/craftsmanship (e.g., that not covered in laboratory
manuals, etc.) is still missing.

> > There is a fellow in Germany that makes tubes in his basement.
>
> I have heard a number of anecdotal stories similar to this but I have
> never been able to get any details. Making reproducible tubes with good
> characteristics is something virtually impossible to accomplish at home.

He gave a talk at the AWA meetings a couple of years back and had an
article in the OTBulletin of the AWA. I will see if I still have that.
It was most interesting. Apparently he has had good success making
``French Tube'' WWI replicas.

> I still stand by my statement made to this group several months ago. I
> believe it would be almost impossible for US industry to tool up and mass
> produce vacuum tubes again at reasonable prices. A significant portion of
> vacuum tube manufacturing is art rather than science - and unfortunately
> the US has lost almost all of the artisans and is rapidly losing its
> technology in vacuum tubes too.

This is, unfortunately, most sad and most true. This country has lost
its ability to do things by the art and craft of it. It is now a
service oriented nation of too-high techhies (I guess that might
also include me, but I still know how to turn wrenches, run a saw,
blow glass, solder, and hand-craft at least a few thingies if the
world crashes....(:+{{.....). I sense many Boatanchorites are in
the same ballpark.....(:+}}.....

That is why I was suggesting we use the existing Russian technology
base, before it also is lost, to rekindle maybe one standard triode
for receiving and one standard triode for transmitting. I think they
still make some late model variants like the 6L6 and 807 or 6146.
If the audio freaks keep those in demand then they should be around
for at least several more years in a generic tube production run.
I have seen the 6L6's and they seem to be pretty good. I have seen

one of their ``807''ish things and dunno how good it is/isn't. Maybe it is a carryover from the Type 19 sets of WWII vintage. It is a military type thing that may not still be made anymore. They make a number of neat military tubes, but they are totally in a non-standard world and fit nothing else but their military gear (kindof like the WWII German tubes [maybe there is a story there]). The insides of the military gear that I have seen (some of their HF/VHF tank/ground sets that came back after the Iraqi war), were most interesting, and according to a fellow who emigrated to the US, who used to work at the plant in Poland that made some of the gear, are the same as have been made there since the middle 60's, when he left in 90, they were still making the same sets, with the same vacuum tubes.

I have a good friend (also one of the biggie collectors/historians on the left coast) who is going to Russia in a few weeks. One of his things-to-do-there is get in touch with the tube brigade and see what possibilities might be workable down the road. I have talked at length with him about this, for some 10 years or more, and my gut feeling is that there is a long-shot chance that someone will make this type of long-shot pay off. Let us keep our fingers crossed, and sees what we can sees..... The infastructure is there, but the bureaucratic tape is a bushelbasketful. I dunno if he can make it work or not.

The Chinese would also be in a position, probably more favorable, especially in terms of net import/export costs/benefits, to do this type of thing, Whether or not it could be made to work, who knows. I suspect that the Russian economic situation is a gotcha, but so also is the Chinese philosophical/doctrinal one.

Enuf politics --- back to the boatanchors!

73/Bob/NA4G

> 73, Barry WA4VZQ ornitz@eastman.com

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: Kevin J Pease <kevin@mm1001.theporch.com>
Subject: Re: Donating QST's
Message-ID: <Pine.LNX.3.91.950802103910.26654A-100000@mm1001.theporch.com>

The problem here is that we are hanging onto the past which is a verry dificult thing to do. So we are facing those dificulties. Our own memory gets fuzzy with time. So does history. When we are all dead and buried and mayby our children are dead an buried the things that we cherish will most likely be dead and buried also. I only regret that I can no longer afford to collect and enjoy those things that i covet. If I had the resources I would have all of the printed CQ's and QST's and Ham radios's etc and old handbooks by ARRL and William Or in my own personal library. I would also have old collins hamarlund and halicrafters radios to use just so that I could experience the equipment from what I consider the glorry days of Ham Radio. Most of the old rigs pre-date me but they are still fun.

Also I think some of my interest in the past comes from a dis-satisfaction with the present. re-inforced by my reading of those old magazines that are now being discarded by the public librarys because they don't have the funding to keep them. If those old magazines were not available I maybee would not have wanted the old equipment that I read about.

Its interesting how everything always boils down to Dollars and Cents as the cause of all problems.

Whell this is enough random rambling for one day.

Kevin J Pease
WB0JZG Mt Juliet, TN.
mm1001.theporch.com

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jproc@worldlinx.com
Subject: Re: Donating QST's
Message-ID: <Chameleon.4.01.2.950903000215.jproc@>

>I would also have old collins hamarlund and halicrafters radios to use
>just so that I could experience the equipment from what I consider the
>glorry days of Ham Radio. Most of the old rigs pre-date me but they are
>still fun.

Kevin,

To expand on what you said, it's documented that many amateurs turned in their licences after World War 1 when they found out that spark transmitters were going to be outlawed. Now, lets just pretend that there was a group like ourselves around in the 1940's (using snail-mail of course!) and dealing with the vacuum tube technology of the day. I wonder if we would be looking back 30 years and saying - Those 'ole spark transmitters - wern't they the greatest? Now that was the golden age of radio.

Nostalgia has some pleasant attributes. It's free, its a state of mind, it can be individually tailored and can be fired up on a moments notice. We always hear of the golden age of this or that and I often wonder, if railway gate keepers, elevator operators and blacksmiths etc... ever refered to their respective golden eras?. (Can't ask - don't know any). The things that we do in our younger days helps to shape our perecption of what we refer to as a golden era.

Regards,
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Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida  Toronto, Ontario
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```

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: Donating QST's es Nostalgia Dejavu
Message-ID: <199508031401.KAA11106@cc01du.unity.ncsu.edu>

>
> >I would also have old collins hamarlund and halicrafters radios to use
> >just so that I could experience the equipment from what I consider the
> >glorry days of Ham Radio. Most of the old rigs pre-date me but they are
> >still fun.

YuP... All the WWII and early stuff predates me, but it is very FB fun and a pleasant gut knee-jerk back into time (without the side effects of the reality of war/famine/stock market crashes, etc......

> Kevin,
>
> To expand on what you said, it's documented that many amateurs turned in
> their licences after World War 1 when they found out that spark transmitters
> were going to be outlawed. Now, lets just pretend that there was a group like
> ourselves around in the 1940's (using snail-mail of course!) and dealing
> with the vacuum tube technology of the day. I wonder if we would be looking
> back 30 years and saying - Those 'ole spark transmitters - wern't they the
> greatest? Now that was the golden age of radio.

Man, I must be WARP tripper back into time, because nothing is finer in the heart o' caroliner to be able to fire up a real rotary gap and watch the zzzzzzzzzap de zzzzzzzap ditty zzzzzzzzap of the sparks (even tho only into a light bulb). Likewise the warm soft yellow glow on an otherwise cold winter night of a gentle pair of '01A's gently regenerating at 22R5 volts upon the plate...... or the harsh stark white light of an '01 in the same rig, on them thar fine waves of useless worth to most all, of 200 metres and down. That is 70 years and more back, so it is a WARP 10 trip.

> Nostalgia has some pleasant attributes. It's free, its a state of mind, it can be individually tailored and can be fired up on a moments notice. We always hear of the golden age of this or that and I often wonder, if railway gate keepers, elevator operators and blacksmiths etc... ever refered to their respective golden eras?. (Can't ask - don't know any). The things that we do in our younger days helps to shape our perecption of what we refer to as a golden era.

Yeah, it keeps us ol' pfartes outta the bars (not that that might not also be a pleasant thingy), and tickles the innards of the greymatters.

But, it is also a mind challenge, that sure beats video games all to hell.

Alas, I am not fortunate enuf to have been there, in reality. But, my OM did have the good fortune to work a long career from LL telegraph to spark to satcomms, all in one working lifetime. That is a REAL trip at WARP 10. I am just a Johnnie come lately who missed it, mainly, but nontheless does like the reverse WARP trip back after a hard day's night chasing unseen thingies in too many testtubies. It is a very interesting perspective in Dejavu looking backwards through time, knowing what we know now......

> Regards,
> ------------------------------------
> Jerry Proc   VE3FAB
> E-mail: jproc@worldlinx.com
> Radio Restoration Volunteer
> HMCS Haida Toronto, Ontario
> ------------------------------------

Likewise.   What a nice way to begin the morning......(:+}}.....

73/ZUT DE NA4G/Bob

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: KE8NEfix@aol.com
Subject: F.S. Vibroplex and other Keyers

Message-ID: <950803141854_129660347@aol.com>

Hi Group,

I know we have some real CW buffs real on the net. [yeah I guess that's the right term] I'm a straight Key man myself, still using my uncles Lionel J-38 key that somehow followed him home from the war [still got the original box somewhere, too]. So when a friend of mine asked me if I was interested in his Vibroplex keys, I thought I'd pass the opportunity along. Here it is:

1. Vibroplex Original Standard [model OS] S/N 139,528 3.5" X 6.5"
black wrinkle base with original case and paperwork.[I assume that means parts list and set up procedure] $225.00 shipped

2. Vibroplex no model found S/N 56,006 2.5" X 6.5" black wrinkle base with extra parts [finger paddles main bar and other parts]
$175.00 shipped

3. Nye Viking Keyer model M/SSK-1 brand new. [I think it has a box, I can't remember what he said, and I can't read my notes]
$125.00 shipped

J.H. Bunnell Telegraph sounder. This was part of old telegraph station. It has been removed from the rest of the equipment. On the plate where the manufacturer plate is located is says"150 Ohm" [uses the latin omega symbol instead of the word ohm]. It also shows a patent date of 1901. Is anybody interested? Hate to ask but make offer? [I know, I know, I don't like to do that either].
Also have a telegraph relay converter that probably came from the same station. Any info would be appreciated.

I believe that these are right hand models since he is right handed.
You can direct correspondence to me, or you can contact him directly. His name is Dee Almquist [that's right Dee is a him, just like Kim is a him] His call is W4PNT. His voice mail number is 1-800-755-2365. This also rings his business number. Home number is 1-703-249-3161.

thanx and 73

KIM KE8NE

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: AviDov@aol.com
Subject: grc-9
Message-ID: <950802121454_128711227@aol.com>

my reply to your post last wk was not deliverable.i hope you will get this try since i added the ba in the cc box.

i have a very clean LS-7 and the NSN data you want on all units you mentioned,besides TM data you might find of interest.

aben

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "JOHN A. KING (WA1ABI)" <JAK@SUD2.ED.RAY.COM>
Subject: Hallicrafters T.O. Keyer question
Message-ID: <01HTN3FUTY0I8XO9CV@SUD2.ED.RAY.COM>

I recently added a Hallicrafters HA-1 "T.O. Keyer" to my modest BA collection. I first used a T.O. in 1966 and have always wanted to own one. From the manual: "The ... T.O. Keyer employs digital circuitry, similar to that found in modern digital computers..." Yes, indeed, even flip-flops glowed in the dark in those days. The T.O. uses two 12AU7's as multivibrators in a marvelously elegant design.

Anyway, the question: what does the "T.O." stand for? Nowhere in the manual is there a clue.

BTW, the Potter & Brumfield Hg-wetted relay used in the T.O. is still listed in the Newark catalog... for $94.37 !!!!!

73,

John King WA1ABI   john@jkhome.network23.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: linscot@is.rice.edu (Steve Linscott)
Subject: Re: Hallicrafters T.O. Keyer question
Message-ID: <199508031957.OAA19348@is.rice.edu>

> I recently added a Hallicrafters HA-1 "T.O. Keyer" to my modest
> BA collection. I first used a T.O. in 1966 and have always wanted
> to own one. From the manual: "The ... T.O. Keyer employs digital
> circuitry, similar to that found in modern digital computers..."
> Yes, indeed, even flip-flops glowed in the dark in those days.
> The T.O. uses two 12AU7's as multivibrators in a marvelously
> elegant design.

>
> Anyway, the question: what does the "T.O." stand for? Nowhere in
> the manual is there a clue.
>
> BTW, the Potter & Brumfield Hg-wetted relay used in the T.O. is
> still listed in the Newark catalog... for $94.37 !!!!!
>
> 73,
>
> John King WA1ABI john@jkhome.network23.com

The circuit was designed by W9TO.

73 de W5EGP

- Steve -

****
* Steve Linscott Divisional Consultant - Natural Sciences *
* IS User Services Rice University Houston, Texas *
****

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>
Subject: Re: Hallicrafters T.O. Keyer question
Message-ID: <Pine.3.89.9508031410.B11529-0100000@mesa5.mesa.colorado.edu>

My understanding concerning the origin of "T.O." is that the design
originally was developed by W8TO.

Jim Rybak W0KSD

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "Gable, Edward M" <emg@rfpo2.rfc.comm.harris.com>
Subject: RE: Hallicrafters T.O. Keyer question
Message-ID: <30212E2E@smtpgate.rfc.comm.harris.com>

I recently added a Hallicrafters HA-1 "T.O. Keyer" to my modest

BA collection.

Anyway, the question: what does the "T.O." stand for? Nowhere in the manual is there a clue.

+++++++++++++++++++++++++++++

The original design was by W9TO, as I recall, and thus the TO keyer.

Ed K2MP @ Rochester
emg@rfc.comm.harris.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "James P. Rybak" <jrybak@mesa5.Mesa.Colorado.EDU>
Subject: Re: Hallicrafters T.O. Keyer question
Message-ID: <Pine.3.89.9508031417.A12309-0100000@mesa5.mesa.colorado.edu>

I stand corrected. The developer of the "T.O" keyer was W9TO.

Jim

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: HAMRLUND@aol.com
Subject: RE: HQ-180 C : has been Sold
Message-ID: <950802144053_128819488@aol.com>

the HQ- 180C has been sold.

thank you

robert fowle

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: Robert2039@aol.com
Subject: Indoor HF antenna problem
Message-ID: <950729235212_43760209@aol.com>

I'm writing this for my friend Mark Fields who does not have a computer. Mark has one of those Kenwood "appliance rigs" and lives in an apartmant complex which does not allow outside antennas. He can hear other amateurs but can't work them with mobile whip antennas with screen mesh as a ground plus has RF feedback problems. I suggested using a pair of metal slinkies but all he hears with that is TV sweep interference. I've never lived in an apartment so I have no idea how to help him. Any ideas?

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: jml@spider.lloyd.com (Jim Lockwood)
Subject: Re: Indoor HF antenna problem
Message-ID: <m0se1db-001OMqC@spider.lloyd.com>

At 02:08 AM 8/3/95 -0500, Robert2039@aol.com wrote:
>I'm writing this for my friend Mark Fields who does not have a computer. Mark
>has one of those Kenwood "appliance rigs" and lives in an apartmant complex
>which does not allow outside antennas.

A much better and *far* more appropriate source of information of this type is the usenet news group rec.radio.amateur.antenna.

The express purpose for which this mailing list was created is the discussion of topics related to preservation and enjoyment of American made, tube type amateur radio equipment.   Let's all remember that and keep subjects focused on this area.

73,

Jim - km6nk

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: jproc@worldlinx.com
Subject: RE: Indoor HF antenna problem
Message-ID: <Chameleon.4.01.2.950903103226.jproc@>

>I'm writing this for my friend Mark Fields who does not have a computer.
Mark
>has one of those Kenwood "appliance rigs" and lives in an apartmant complex
>which does not allow outside antennas. He can hear other amateurs but can't
>work them with mobile whip antennas with screen mesh as a ground plus has RF
>feedback problems. I suggested using a pair of metal slinkies but all he
>hears with that is TV sweep interference. I've never lived in an apartment
so
>I have no idea how to help him. Any ideas?

Robert,

Loop antennas seem to be popular with a few apartment dwellers. In particular the Iso-Loop brand which covers 10 to 30 Mhz could be used. One ham that I know has been successfully using a home built loop but they require a variable capacitor with at least a 6 to 8 kv voltage rating. These are hard to find, so most people stop right at that point.

The loop antenna is small in size - about 2 to 3 feet in diameter, has extremely high Q, needs to be retuned for every minor frequency excursion but does fit in a small space and gives the apartment dweller a window to the world. One precaution that I cannot overstress - the loop antenna should be located at maximum distance from the operator from both an electrical and an RF field viewpoint. The worst case is for those who have no balcony.

Regards,

Jerry Proc   VE3FAB
E-mail: jproc@worldlinx.com
Radio Restoration Volunteer
HMCS Haida Toronto, Ontario

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: KE8NEfix@aol.com
Subject: Re: Indoor HF antenna problem
Message-ID: <950803161612_129745113@aol.com>

Well Jim,

Where else might one go for better info than here perhaps. After all, even though we run old gear and enjoy it, we don't have the luxury of running widely mismatched antenna systems. Our equipment doesn't automatically match our systems for us or shut itself down if can't. Then too, probably most of us were involved with radio a long time ago when experimentation and r&d was as important as a marketing strategy. I am awatre of several ways to make an antenna that will work indoors. But the last time I saw anything discussed in CQ, QST or 73 magazine was at least 10 years ago. Most of the new people run sanboxes [ricebox if you will], and really have no idea how to go about designing an antenna system. Even some of these antenna specialists leave me wondering. Besides we might get another convert if we''re nice to them.

73
KIM

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995

From: BCdlr@aol.com
Subject: Info on Gonset GSB-100
Message-ID: <950802133333_46312834@aol.com>

I just acquired a Gonset GSB-100 XMTR. I have an owners manual, would just like to know some general info: How old is it? (only date in book is '59 on a schematic), How good were they? (all I've heard is favorable comments), Any hint or tips on operation/ restoration? (I intend to USE this radio). Only thing wrong so far is some flakey filter caps somewhere...
Please email me, bcdlr@aol.com
73's
Dan Reynolds, bcdlr@aol.com, KB9JLO

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jml@spider.lloyd.com (Jim Lockwood)
Subject: Re: Info on Gonset GSB-100
Message-ID: <m0sdndu-001OYMC@spider.lloyd.com>

At 12:40 PM 8/2/95 -0500, BCdlr@aol.com wrote:
>I just acquired a Gonset GSB-100 XMTR. I have an owners manual, would just
>like to know some general info: How old is it? (only date in book is '59 on
>a schematic)

Without knowing more about the transmitter you have, 1959 is as good a guess as any. They were produced starting in, oh, about 1958 and were probably off the market by 60 or 61.

The newest models have cooling vents in the bottom of the cabinet and have two rather large audio transformers (one mounted sideways on a bracket) in the balanced modulator.

Mid production units have cooling vents, but small transformers, mounted flat on the chassis.

Early units have no cooling vents and small transformers.

Extremely early units have a bandswitch position for 11 Meters.

>, How good were they? (all I've heard is favorable comments),

SSB is by the phasing method so the audio quality is going to be quite good.

Power output, being from a single 6DQ5, is 25 - 35 Watts and is good enough for local rag chews. Power tends to drop off somewhat on 20, 15, and 10.

> Any hint or tips on operation/ restoration? (I intend to USE this radio).

Despite the alignment sequence shown in the manual, do the neutralization before you attempt to peak the driver circuits on 20, 15, and 10.   Failure to do this can cost you a 6DQ5 (ask me how I know).

The weak link in a GSB-100 seems to be the power transformer. Learn to tune up quickly and infrequently. (Of the three I have, two came to me with bad transformers.)

Be sure the 1K Drive Level pot is not scratchy and replace it immediately if it is. Scratchiness in this pot can send some gawdawful transients through the transmitter when it is rotated.

There were at least two different schematics released by Gonset for this transmitter and while the differences between them are not major, they are numerous.   Comparing the two I have, I count no fewer than 14 engineering changes. If you want to email me off-line from BA about your rig, I'll help you figure out what you have and what schematic seems to apply.

The GSB-100 is a cute, quirky little(?) transmitter that is fun to use.
Good luck bringing yours up to full operational status.

73,

Jim - km6nk

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: "Carl P. Gottsmann" <kn6al@ecst.csuchico.edu>
Subject: Info, Pse: 1N21
Message-ID: <Pine.HPP.3.91.950803132503.6684B-100000@steroid.ecst.csuchico.edu>

Greetings team,

I have a few old, Western Electric 1N21 diodes (D-163366).
I'd like some info as to what they are: Signal diodes??
Rectifiers?? (I think not?). What were they used for by W.E.?
They are about the physical size of 22 short bullets. Any spec's
would be very much appreciated!
I think these qualify as BoatAnchors; there *OLD*!!

Thanks in advance,
Carl, KN6AL

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: w0ogh@ix.netcom.com (Larry Godek)
Subject: Lube jobs
Message-ID: <199508022120.OAA07853@ix6.ix.netcom.com>

When I was a bit younger and worked on TTY machines for a living, when you didn't have any of the designated oil available, Automobile oil in a thin covering worked well. As long as the felts didn't turn white, the machine would do pretty well although you could expect to see some errors appearing once in a while as the mechanisms started to slow in their movements. Timing was very important expecially in grab-release times on clutches.

Thought Fred at Typetronics was no longer there. I sold him lots of 28, 14 and 15 parts years ago. recently tho, I gave away my 28ASR with 3 speed gear shif and typing reperf under dome as 28 KSR. Both beautiful running machines. (sniff sob sob) I sure miss the nice smell of warm oil and grease and smooth operating machines such as those.

The old 33 were bend and try type machines. The 35 was an 8 level machine that if used with the mag tape system could be used on 5 level stuff. What a night mare them things was. Course on the 33 if'n it couldn't be bent in the right position to work, u just junked it and put in a whole new one. El cheapo. I've seen guys with stacks of them and couldn't give them away. 28's always been in demand tho.

nuff said.

Larry W0OGH

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: jmartin@hrlban1.aircrew.asu.edu
Subject: Making tubes
Message-ID: <SA39+ziE6ka@hrlban1.alhra.af.mil>

Ref:
>I have heard a number of anecdotal stories similar to this but I have
>never been able to get any details. Making reproducible tubes with good
>characteristics is something virtually impossible to accomplish at home.

>I still stand by my statement made to this group several months ago. I
>believe it would be almost impossible for US industry to tool up and mass
>produce vacuum tubes again at reasonable prices. A significant portion of

>vacuum tube manufacturing is art rather than science - and unfortunately
>the US has lost almost all of the artisans and is rapidly losing its
>technology in vacuum tubes too.

==

Now don't laugh (I hope I don't regret this), but I am working toward just this goal, in case anyone's interested. I specialized in high vacuum work when getting my Physics degree, and learned laboratory glassblowing including glass-to-metal seals. (I made my own vidicon - rolled my own electron gun, evaporated my own target - way back when in my college years.) I have gradually accumulated the required equipment, and hope to try making prototype tubes sometime in the next year or two. These would be one-of-a-kind, made one at a time. There is a person down in San Diego who makes (or was making) reproductions of DeForest spherical audions, advertised in Antique Radio Classified... unfortunately, $350 a pop. A person can learn a lot by studying early electron tube construction, and with the right equipment and knowledge it isn't difficult; the 'Audiotron' cylindrical triode is a good example of something a person could make.

73, John Martin

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: KE8NEfix@aol.com
Subject: Re: Making tubes
Message-ID: <950803143225_47161938@aol.com>

Hey John,

Why would we Laugh. I know a fellow is the current Plant manager for Sylvania at their Picture Tube plant in the Detroit Michigan area. He is planning to begin rebuilding antique tubes at home after he retires. He has the glass source, the material source and ,presumably the market for just a venture. With new UX-250's Running at well over $150.00 a piece, a person with those old radios should be able to afford to ghet the items rebuilt. to quote him " it's a snap to do." He's been involved in vacuum tube manufacture for almost 40 years. There are people who have complete tube manufacturing lines for sale right now in this country. There are more people [engineers] who are funding Companies like Svetlana. According to my friend, the biggest reason that tube manufacture has gone away in this country is EPA regulation. Tube manufacture in high quantity is apparently dirty and the toxic waste regulation makes it to costly to make small signal tubes here. That's why only medium and high power tubes are made here anymore. Also, many tube companies sent their tube lines overseas, like when Phillips bought Slyvania up. Believe me, the skill and know-how exist. It's finding a place for it to continue to be used.

73
KIM

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: jcreid@CCGATE.HAC.COM
Subject: Motorola memory fade
Message-ID: <9507038074.AA807460790@CCGATE.HAC.COM>

My apologies to the list. What I said was a Motorola Compa-Station was actually what they called a Consolette Base Station. The Compa-Stations were larger and not meant for desktop use. On the other hand, it might have been a DC remote hooked up to a Compa-Station located around the corner. The Consolettes and DC remotes used the same cabinet. I've never watched an episode that had a good full on view of the radio.

-Jim

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: ejz@nosc.mil (Edward J. Zeranski)
Subject: Re: Motorola memory fade
Message-ID: <9508031527.AA17001@manta.nosc.mil>

> My apologies to the list. What I said was a Motorola Compa-Station was
>actually what they called a Consolette Base Station. The Compa-Stations were
>larger and not meant for desktop use. On the other hand, it might have been a
>DC remote hooked up to a Compa-Station located around the corner. The
>Consolettes and DC remotes used the same cabinet. I've never watched an
episode
>that had a good full on view of the radio.
>
>-Jim
>
>   I worked on a couple of radio systems back in the early 60's that used the consolettes. One was used by the tow trucks and transportation office on North Island in San Diego. My partner and I answered a trouble call from the dispatchers office because the drivers were all saying the dispatcher was garbled. We called in from our mobile and sure enough it sounded like _hit but the mobiles were fine. Ike and I figured that someone had messed with the modulation level on the consolette and headed for the dispatchers office. When we got there the dispatcher, a gravel voiced old bosun with cegar in his teeth and coffee cup in hand, growled that the %_**##! radio %^&**ed up everytime he was on duty and you clowns better fix it! What could we tell him? We just tweeked a bit and waited for shift change. After that we just gave him loud and clear when he called for a radio check no matter how he sounded.
>

Ed Zeranski   ejz@marlin.nosc.mil, work

ezeran@powergrid.electriciti.com, home
Wooden Boats, Tube Receivers, Rusty Old Trucks, The Good Stuff!

This is a private opinion or statement and is nobody's fault but mine. No person,employer,or govt.should try to take credit for it!

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: haynes@cats.ucsc.edu (Jim Haynes)
Subject: Re: Motorola memory fade
Message-ID: <199508032038.NAA05698@hobbes.UCSC.EDU>

>From ejz@nosc.mil Thu Aug 3 08:32:01 1995
>dispatchers office. When we got there the dispatcher, a gravel voiced old
>bosun with cegar in his teeth and coffee cup in hand, growled that the
>%_**##! radio %^&**ed up everytime he was on duty and you clowns better fix
> it!

A similar but more pleasant story from my youth - there was this operator in Texas Civil Air Patrol, who had the most sultry, sexy, husky voice on the radio - what sound to wake up to on an early morning net. Then she had to go and get a new microphone...

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Need a third and final oscillator article
Message-ID: <199508021948.PAA29851@cc01du.unity.ncsu.edu>

I found one more pointer to a reference that uses the Seiler oscillator. It is an article by W3JHR in CQ September, 1963, on using old ARC-5 parts to make a ``synthetic rock'' vfo using --- eek --- germanosilicus rockies of the non-self-heating kind. If anyone has that handy, I would appreciate a copy of that article, also.

TNX/Bob/NA4G

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Need two articles on oscillators
Message-ID: <199508021915.PAA27353@cc01du.unity.ncsu.edu>

I am writing a small paper about the Seiler oscillator, and need two references that I can't seem to find around here.

1. Roberts, [initials unknown]. 1940. The limits of inherent frequency stability. RCA Review, August [volume/pages unknown].

2. Clapp, J.K. 1954. Frequency stable LC oscillators. Proc. IRE, August, [pages unknown].

I could probably get these on interlibrary loan, but if someone may have either article handy, amongst the Boatanchorites, I would appreciate a copy.

TNX/Bob/NA4G

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: rdkeys@unity.ncsu.edu
Subject: Re: Need two articles on oscillators
Message-ID: <199508021917.PAA27476@cc01du.unity.ncsu.edu>

>
> I am writing a small paper about the Seiler oscillator, and need two references that I can't seem to find around here.
>
> 1. Roberts, [initials unknown]. 1940. The limits of inherent frequency stability. RCA Review, August [volume/pages unknown].

Stupid typo......   APRIL, not August, 1940.

> 2. Clapp, J.K. 1954. Frequency stable LC oscillators. Proc. IRE, August, [pages unknown].
>
> I could probably get these on interlibrary loan, but if someone may have either article handy, amongst the Boatanchorites, I would appreciate a copy.
>
> TNX/Bob/NA4G

Bob...... Somedays the fingers just won't work.....(:+{{.....

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: "James C. Owen, III" <owen@apollo.eeel.nist.gov>
Subject: Re: R-390A Dial lamps
Message-ID: <46016.owen@apollo.eeel.nist.gov>

In message Wed, 2 Aug 1995 11:07:21 -0500 (CDT),
dma@IslandNet.com (Jan Skirrow) writes:

> They are type 328. My R-390A runs the two in parallel from the 6.3vac bus through a 2.7 ohm resistor. With this voltage drop the 328s should last awhile. Mine didn't and I haven't found a source! What seems easy to come by is the 28volt version of this lamp. Anyone have a source for the 5 volt 328??

The 328 is a common lamp used in many types of modern equipment. They should be avaliable from all electronics supply houses. Newark electonics has them listed for $10.26 for a package of 10 and they are 6.0v at 200 ma. with a 1000 hr rating.
James C. Owen, III
National Institute of Standards & Technology (NIST)
Bldg 225/B360
Gaithersburg, MD 20899
1-301-975-5623

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: morgan@speckle.ncsl.nist.gov (Roy Morgan)
Subject: R-390A lamp life
Message-ID: <9508031343.AA03958@speckle.ncsl.nist.gov>

Anchorites,

The R-390 and R-391, (and presumably the R-392) use GE Mazda number 327 lamp, size T-1 3/4, 28 volts, 0.040 amp, 4,000 hours, .34 candlepower/4.27 lumens.

The R-390A uses the GE Mazda number 328 lamp, size T-1 3/4, 6.0 volts, 0.200 amp, 1000 hours, .63 candlepower/7.9 lumens.

The "long-life" version of the 328 seems to be the 381. rated at 6.3 volts, 0.200 amp, 50,000 hours, .40 candlepower/5.03 lumens.

(Some of the above data is taken from the catalog of JKL Corporation, lamp manufacturers, 800-421-7244.)

The R-390 drives the two of them with a 2.7 ohm resistor to drop the 6.3 filament line to a lower voltage (what that is in my receivers, I don't know yet.) This can be expected to extend the life by quite a lot.

Assume that the filament voltage is 6.3x120/115=6.6 (typical line voltage of 120, R-390A design line voltage of 115), and that the resistor is really 2.7 ohms.

Assume the lamps draw the rated 200 ma each at the lowered voltage for total of 400 ma.

Then the drop of the resistor will be 1.1v, so the lamp voltage will be 5.5 which is 92 percent of rated voltage.

The manufacturers catalog shows that at 90 percent of rated voltage, a lamp will draw 94 percent of its rated current, and last 3-1/2 times rated life.

So your lamps should last a long time.

Here's a table of predicted performance of incandescent lamps run at reduced voltage:

(All values in percent of rated value)

Volts	Amps	MSCP*	Life
99	99.4	96.5	112.8
98	98.9	93.2	127.4
97	98.3	89.9	144.1
96	97.8	86.7	163.2
95	97.2	83.6	185.1
90	94.4	69.2	354.1
85	91.4	56.6	703.0
80	88.5	45.8	1455.2
75	85.4	36.5	3156.9
70	82.2	28.7	7224.8

*Mean Spherical Candle Power ("brightness")

To re-rate lamp behavior, use the following formulae:

V1 = Rated Voltage of Lamp
V2 = Lamp Application Volts

MSCP = (V2/V1)^3.5 x design mscp at rated voltage

amps = (V2/V1)^0.55 x design amps at rated voltage

life = (V1/V2)^12 x design life at rated voltage

Keep 'em glowing!

-- Roy --
Roy Morgan / Tech A-266 / NIST / Gaithersburg MD 20899
(National Institute of Standards and Technology, formerly NBS)

301-975-3254 Fax: 301-948-6213 Internet: morgan@speckle.ncsl.nist.gov
---

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: Bill VanAlstyne <bill@cruz.com>
Subject: Re: R-390A lamp life
Message-ID: <199508031620.AA05880@cruz.com>

At 08:45 AM 8/3/95 -0500, Roy Morgan wrote:

>The R-390A uses the GE Mazda number 328 lamp, size T-1 3/4, 6.0 volts, 0.200
>amp, 1000 hours, .63 candlepower/7.9 lumens.
>
>The "long-life" version of the 328 seems to be the 381. rated at 6.3 volts,
>0.200 amp, 50,000 hours, .40 candlepower/5.03 lumens.

[snip..]

>...So your lamps should last a long time.

Roy,

Thanks for the great information! I checked around town for the bullet-proof version of this lamp (the 381) but couldn't find it anywhere locally. However, since I'm not as yet planning to use this radio in an extended-period, mission-critical combat situation, I think the expected lifetime for the 328 lamps, as designed, will probably suffice. :)

I'll go down to the emporium today and make sure I scam those last four 328s that they have.

Bill VanAlstyne
N6FN
bill@cruz.com

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: knaack@wsu.edu (Charles Knaack)
Subject: R390 2nd oscillator crystal
Message-ID: <v01510109ac46c59463c9@[134.121.47.16]>

Gentelmen,

I believe I need a new crystal for my R390. I rescued this radio from university surplus 10 years ago because I thought it was interesting and nobody else wanted it. I plugged it in and it worked, but I had no room for it at the time, so I left it in a friends garage and forgot about it. He recently moved and asked me if I still wanted "that god-awful heavy radio". I did. Anyway, to shorten this up a bit, I got a manual for it from Don Merz and have been tinkering with it in my spare 20 min/week (a new baby and a new house within the last year).

My apparent problem is as follows: I can't get a calibration tone on either the 0,1,9 or 21 MC bands. These bands all use the 12000.00 kC xtal. The scope trace off of the 2nd oscillator output goes flatline on any of these freqs. I've cleaned the rf bandswitch, but it would be really strange to have 4 widely spaced dead-spots when the crystal seems to be the the common denominator. I tried lifting the xtal out of its socket to see if it just had a bad contact (frequently works w/ old DEC computer chips ;-)), but no luck. I'm still pretty new at this and would appreciate any hints or suggestions as to what I could try next or where I could find a new xtal. Fair Radio sells xtals for the R390A. Are they the same? Anybody out there have a spare that they could part with?

Thanks for your help,
Charles

****
Charles Knaack
GeoAnalytical Laboratory
Geology Department, Physical Sciences 1228
Washington State Univ.
Pullman, WA 99165-2812
(509)335-1626, FAX (509)335-7816
knaack@wsu.edu, geolab@mail.wsu.edu
Visit our world wide web page at http://www.geol.wsu.edu/
****

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: TOM.A.ADAMS@mail.admin.wisc.edu
Subject: Re. T.O. Keyer
Message-ID: <F83F1314.F83F1326@mail.admin.wisc.edu>

to: boatanchors@theporch.com

Hello John.

Re. the name of the T.O. Keyer; it is derived from the callsign of the developer of the circuit, W9TO.

BTW, I've also got a T.O. Keyer, but no manual. Could we possibly work something out for a xerox copy?

73's,
Tom, K9TA

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jcreid@CCGATE.HAC.COM
Subject: Sheriff Taylor's radio
Message-ID: <9507028074.AA807403852@CCGATE.HAC.COM>

The radio next to the gun cabinet in the old Andy Griffith show was a Motorola Compa-Station. I've got a couple in my garage. Neat radio. The cyclometer clock always seems to be bad in them, tho. I was using mine daily on UHF until the repeater group changed their PL freq. and I didn't have a vibrosender to match. Oh well....

-Jim N6SVS
jcreid@ccgate.hac.com

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: dan.poorman@lsj.com (Dan Poorman)
Subject: Sheriff Taylor's radio
Message-ID: <9508022257325345@lsj.com>

->
->   The radio next to the gun cabinet in the old Andy Griffith show wa
-> Motorola Compa-Station.

Yep, I've got a few too. But the radio in the early days of the show at least was an EICO am/cw rig. I don't remember the receiver but it was something like and s38 or it's ilk. Completely out of place for the time period. Sould have had a 30D there.

Dan, WB8QKR
dan.poorman@lsj.com

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: adumas1@ix.netcom.com (Andrew Dumas)

Subject: Tek 532 scope manual needed
Message-ID: <199508031102.EAA27096@ix9.ix.netcom.com>

Anyone have a manual or a copy for a Tek 532 scope and perhaps one for a Type L plug-in too?

It seems to me old Tek scopes are like cats: you start with one and before you know it you've got half a dozen. This makes Tek scope number three for me and counting! 8-))

73

Andrew Dumas
N1TGC
adumas1@ix.netcom.com
adumas@dbh.com

From boatanchors@theporch.com Thu Aug 3 14:05:00 1995
From: Filip M Gieszczykiewicz <filip@smi.med.pitt.edu>
Subject: Re: Tek 532 scope manual needed
Message-ID: <9508031744.AA02024@alpha.smi.med.pitt.edu>

You (Andrew Dumas) wrote:
> Anyone have a manual or a copy for a Tek 532 scope and perhaps one for
> a Type L plug-in too?

Greetings. Here's the answer I send to anyone who asks your question in sci.electronics.

-----------------chop-with-axe---------------chop-with-axe--------------------

WHERE CAN I GET A MANUAL/SCHEMATICS FOR EQUIPMENT? V2.06

[Mostly HP and Tektronix oriented]

Contents:

- Tektronix Manuals
- Hewlett Packard (HP) Manuals
- Various Other Manuals Sources
- Heathkit Schematics
- Misc Articles/Info
- Misc Trivia

Contributors: Rich Osman, Michael Covington, Jim Mc Vein, Richard D. McRoberts, Jeff Gruszynski, James Walker, Bill Mayhew, Stanley Perkins, Mike Serafin, Thomas G Booth, Scott Holderman, Jerilyn McLaren, Paul Hudson, and John De Armond

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TEKTRONIX MANUALS

* Ed Matsuda
Test Equipment Manuals
P.O. Box 390613
San Diego, CA 92149
Tel: 1-619-479-0225
Fax: 1-619-479-1670

"He Sells HP and Tek Manuals"

* Deane E. Kidd W7TYR
27270 S.W. Ladd Hill Road
Sherwood, OR 97140
Tel: 1-503-625-7363

Mr. Kidd is a retired Tek engineer who sells old Tektronix manuals:

For example, a 465 manual is $35. Also available, for $20, is Stan Griffith's "Oscilloscopes: Selecting and Restoring a Classic"... As reviewed by Wes:

"I bought that one through Tucker Electronics and it is one good book for anyone who has an old Tek scope. It details how to troubleshoot them, where to find parts and most of all, it rates them as to thier serviceablity in today's electronics. It also covers the MANY plug-in's out there. I had no Idea how Many was there! Like a strain gauge pulg-in?? Good book and worth the money (as I own 4 old Tek scopes and love each of them dearly ;-)"

* Bob Garcia
Tel: 1-404-977-5701

Bob is a retired Tek engineer who refurbishes and sells scopes for spending money. A typical deal will be a 60 mhz transistorized tek scope for about $125. Anyone who attends hamfests in the southeast will recognize Bob as "Mr Scope."

- R5-D3 Electronic Surplus
  Portland, OR
  Tel: (503) 774-6560
  Ask for Bob Lee.

  [Older Tektronix 'scope stuff/plugins/manuals]

  If he doesn't have what you are looking for, he will know who to point you to here in the land of Tektronix.

- Tektronics, Inc.
  P.O. Box 500
  Beaverton, Oregon 97077
  Tel: 1-800-426-2200 (best)
  Tel: 1-800-838-3553

  Most older manuals are available as fische only. The paper versions are sky high if they're available. I paid $7 for a 561A manual, and $5 and $10 for the amp and timebase plug-in manuals. Newer scope manuals are about $25 on fische, and in excess of $100 for the paper version. I was able to find a surplus fische reader at the SW Bell surplus store for $10, so it's not to bad.

  HP is much better when it comes to pricing on their paper manuals :-(

HEWLETT PACKARD (HP) MANUALS

- Helwett Packard also sells manuals for [basic] instruments. If they don't have printed manuals anymore, they still try to stock the microfiche versions.

  In the US & Canada: 1-800-227-8164, 6AM-5PM Pacific Time, Monday-Friday. (Prices are between $25-$40 each for these ones when I looked, but this could change tomorrow. Call to get the latest prices)

  Tel: 1-800-227-8164 6AM-5PM Pacific Time, Monday-Friday

Call to get the latest prices.

Another number to try is:

Tel: 1-800-452-4844

But it could be old.

VARIOUS OTHER MANUALS SOURCES

* Domain BBS 1-208-375-6571

  Marty Gasmans service manuals are included as are manuals from other individuals. You may search the database while online, add your own entries, change your own entries and delete your own entries. Anyone may log onto the BBS and search any of the databases. Please feel free to add service manuals that you no longer need and would like to sell. If you have a very large list of manuals, contact the sysop for a free database program that will let you enter the manuals offline and then upload them to the database.

* Fair Radio Sales
  Lima, OH
  Tel: 1-419-223-2196
  Tel: 1-419-227-6573 (old?)

  They carry some older manuals as well as tubes of all sorts. Call them and ask for a catalog.

* Manuals Plus
  Tel: 1-206-531-8031

  These folks deal in service manuals for test equipment.

* Sevice Center
  Paramus NJ
  Tel: (201) 262-9550

  They have Service/Information on Fluke meters.

* Tucker Electronics
  Dallas, TX
  Tel: 1-800-527-4642

  They are another good source of used manuals for older instruments.

HEATHKIT SCHEMATICS

* The Manual Man
  27 Walling St
  Sayreville, NJ 08872
  Tel: (908) 238-8964

  Also, try Heathkit in Benton Harbaor Michigan. They are still selling Manuals.

* Heathkit Education Systems
  Heath Company
  Benton Harbor, MI 49022
  Tel: 1-800-253-0570

MISC ARTICLES/INFO

* If I may blow my own horn for a moment, September 1994 issue of Electronics Now contains an article I wrote called, "New Life for Old Oscilloscopes," by Michael Covington, complete with a schematic of a Heath IO-12.

* If you are looking for some obsure manual, you should just a hop skip and jump to THE ham radio mecca in Dayton, OH at the end of the month of April. There's no excuse available for not going. Things like weddings get postponed so hams can make it to the

Hamvention. I'm sure you'll find manuals for the scope frame and all the plug-ins at Dayton. Cost is probably about $5 to $15 each.

MISC TRIVIA

This article compiled by <filipg@paranoia.com>. The most recent version is available on the WWW server http://www.paranoia.com/~filipg [Copyright] [Disclaimer]

-----------------chop-with-axe----------------chop-with-axe---------------------

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: haynes@cats.ucsc.edu (Jim Haynes)
Subject: Re: Tek 532 scope manual needed
Message-ID: <199508032009.NAA05667@hobbes.UCSC.EDU>

>From adumas1@ix.netcom.com Thu Aug 3 04:07:44 1995

>It seems to me old Tek scopes are like cats: you start with one and
>before you know it you've got half a dozen. This makes Tek scope
>number three for me and counting! 8-))

Uh, no it doesn't work that way. I've had one old Tek scope since, oh, 1964 or so. But if you start with two of them things might be different. Or maybe if you just have one but you let it out of the house now and then...

From boatanchors@theporch.com Thu Aug 3 17:26:00 1995
From: FRANCIS4@AppleLink.Apple.COM (Francis, Dexter)
Subject: Tube test box project???
Message-ID: <807484167.6406665@AppleLink.Apple.COM>

Hey, all you hankerin for a tube tester - what about this:

A box with a volt meter and milliamp meter and a series of sockets on it, along with some rotary selector switches, and "jumper cables" that have plugs on both ends for each type of socket. One end plugs plug into the socket in the chassis of the BA and the other end plugs into one of two identical sockets on the test box; one for "input" and one to plug the tube under test into.

There is a pin to pin connection made from the "chassis" socket to the "test" socket with a momentary open switch in the middle and a each line. Off each terminal of each momentary switch is a line running to a contact on two layer rotary switch with the volt and milliamp meters connected between the wipers.

By rotating the wiper position of the two layer wafer switch, the meters can be shunted onto any of the lines. When the momentary switch is pushed, the current is forced thru the meter path, giving a reading as long as the momentary switch is held open.

This provides a way to get the filamment, plate and grip voltages to the tube and the meters switched in, to get a voltage and current reading on any of the lines. In this way you can measure B+, Plate, Grid and Filament Voltage and current for any type of tube in the circuit in which it was designed to run.

Have I missed something? Is this just another "wild hair" useless idea?
(Should I try and build one???)

-df

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: jmartin@hrlban1.aircrew.asu.edu
Subject: Type 328 lamp
Message-ID: <SA39+xau5ka@hrlban1.alhra.af.mil>

Ref:
>They are type 328. My R-390A runs the two in parallel from the 6.3vac bus
>through a 2.7 ohm resistor. With this voltage drop the 328s should last
awhile. Mine didn't and I haven't found a source! What seems easy to come
>by is the 28volt version of this lamp. Anyone have a source for the 5 volt
>328??

==
My latest issue of the Newark Electronics catalog (no. 113) lists type 328 lamps. See page 1255 (Osram Sylvania, package of ten costs $10.26), page 1258 (Chicago Miniature Lamp, package of ten costs $10.26) or page 1266 (SPC Technology, package of ten costs $9.60). All are rated at 6.0 v, 200 mA. In a 5 volt application this lamp should last quite a while. Newark has many local sales offices around the country. If you don't have their catalog, and they aren't listed in your yellow pages, fire a message back to me along with

your QTH and I'll look in their catalog for their nearest office and give you the number to call.

73, John Martin

From boatanchors@theporch.com Thu Aug 3 10:19:00 1995
From: Dave Horsfall <dave@esi.COM.AU>
Subject: Re: Was: RTTY model 15's
Message-ID: <Pine.SUN.3.91.950803172532.27768B-100000@eram.esi.com.au>

On Fri, 28 Jul 1995, David Barts wrote:

> And Hollerith is a 12, not 6, bit code. Why so many bits? Because a
> card would be physically weakened if too many holes are punched out in
> a given column; the extra bits are needed so that only binary numbers
> without too many 1's in them can be used.

And punching a "lace" card (one with all holes punched out) was one
way of giving the operators a hard time...

--
Dave Horsfall (VK2KFU) | dave@esi.com.au | VK2KFU @ VK2AAB.NSW.AUS.OC | PGP 2.6
Opinions expressed are mine. | D8 15 71 F9 26 C8 63 40 5E 63 5C 65 FC A0 22 99